ABSTRACT OF THE INVENTION

FAULT TOLERANT STORAGE SYSTEM AND METHOD WITH CONTROLLABLE REDUNDANCY

The disclosed invention stores files in a set of independent, functionally equal pieces. These pieces are placed on different servers of a distributed network to achieve a pre-determined level of fault tolerance. Terms of fault tolerance are defined in terms of amount of unavailable sites in the network allowing receipt and access to the data file.

5   Maximal and minimal number of pieces available are variable method parameters. The minimal amount of data pieces k needed to restore a data file is defined. The size of each piece is approximately equal to 1/k of the original file size. The maximal amounts of pieces are defined during distribution operation and depend upon a requested fault tolerance level. Redundancy in data storage is minimized and varies dynamically by

10   changing the total amount of pieces available. Significant increase in data transfer rate is possible because all file pieces could be transferred parallel and independently.